Asbestos and Lead-Based Paint Survey Report

Building M766
Hospital District – Old Navy Base
North Charleston, South Carolina

February 3, 2020
Terracon Project No. EN197470

Prepared for:
Palmetto Railways
Charleston, South Carolina

Prepared by:
Terracon Consultants, Inc.
North Charleston, South Carolina

Inspected by:
Craig C. Langford (SC ASB-22775)

February 3, 2020

Palmetto Railways
540 East Bay Street
Charleston, South Carolina 29403

Attn: Alec Thompson
Phone: (843) 737-8440
Email: athompson@palmettorail.com

Re: Asbestos and Lead-Based Paint Survey Report
Building M766
North Charleston, South Carolina
Terracon Project No. EN197470

Dear Mr. Thompson:

Terracon Consultants, Inc. (Terracon) is pleased to present the results of the asbestos and lead-based paint survey performed on January 9, 2020 of Building M766 located on the Old Navy Base in the Hospital District in North Charleston, South Carolina. We understand that this survey was requested due to the planned renovation or demolition of the building.

Terracon appreciates the opportunity to provide environmental consulting services. If you should have any questions regarding this report, or if you need assistance with bid documents or project oversight during the building renovation/demolition, please contact the undersigned at (843) 277-8402.

Sincerely,
Terracon Consultants, Inc.

Craig C. Langford, OHST
Senior Industrial Hygienist

Jeffrey A. Gurrie, CIH
Authorized Project Reviewer

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EXECUTIVE SUMMARY

This executive summary is intended as an overview for the convenience of the reader. The report should be reviewed in its entirety prior to making any decisions regarding this site.

Terracon Consultants, Inc. (Terracon) conducted an asbestos and lead-based paint survey for Building M766 located on the Old Navy Base in the Hospital District in North Charleston, South Carolina. It was our understanding that the building may be renovated or demolished in the future. The purpose of this survey was to sample and identify suspect asbestos-containing materials (ACM) and provide information regarding the identity, location, condition and approximate quantities of ACM in interior and exterior building components.

The survey was performed on January 9, 2020, by a South Carolina Department of Health and Environmental Control (SCDHEC) licensed asbestos inspector in general accordance with our proposal dated December 18, 2019 and the sampling protocols established in EPA 40 CFR 763 (Asbestos Hazard Emergency Response Act, AHERA) and the SCDHEC Regulation 61-86.1 Standards of Performance for Asbestos Projects.

Forty (40) bulk samples were collected from homogeneous areas of suspect ACM. Based on the results of laboratory analysis, suspect materials were identified as asbestos containing materials (ACMs) defined as containing >1% asbestos.

Laboratory analysis identified asbestos in the following materials:

- Friable joint compound (Chrysotile, 2%) associated with the wallboard system located throughout the building; approximately 15,300 ft^2 ,
- Non-friable sheet flooring backing (Chrysotile, 6%) located in all bathrooms on each floor; approximately 1,800 ft^2 ,
- Non-friable roof flashing, fibrous layer (Chrysotile, 2%-5%) located on the roof, approximately 500 ft^2.

Terracon recommends removal of the asbestos-containing materials by a South Carolina licensed asbestos abatement contractor prior to the disturbance of these materials during renovation of the building. Additionally, a project design and third-party air monitoring is required.

Four (4) paint-chip samples were collected from the components of the structure on the site. The sample results were below the EPA definition of lead paint of 0.5% and below the SCDHEC 0.06% by weight threshold for disposal.

ASBESTOS AND LEAD-BASED PAINT SURVEY REPORT
BUILDING M766 – HOSPITAL DISTRICT OLD NAVY BASE
NORTH CHARLESTON, SOUTH CAROLINA
PROJECT NO. EN197470
INSPECTION DATE: January 9, 2020
REPORT DATE: February 3, 2020

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) conducted an asbestos and lead-based paint survey of building materials in Building M766 located on the Old Navy Base in the Hospital District in North Charleston, South Carolina. The survey was conducted on January 9, 2020, by a South Carolina Department of Health and Environmental Control (SCDHEC) licensed building inspector in general accordance with our Proposal No PEN197470Rev1 dated December 18, 2019 and Palmetto Rail Continuing Services Agreement dated November 1, 2019. The purpose of this survey was to sample and identify suspect asbestos-containing materials (ACM) and provide information regarding the identity, location, condition and approximate quantities of ACM in interior and exterior building components.

Terracon understands that the building will be renovated or demolished. Environmental Protection Agency (EPA) regulation 40 CFR 61, Subpart M, National Emission Standards for Hazardous Air Pollutants (NESHAP), prohibits the release of asbestos fibers to the atmosphere during renovation/demolition activities. NESHAP and SCDHEC requires that potentially regulated asbestos-containing building materials be identified, classified and quantified prior to planned disturbances or demolition activities.

Suspect ACM was sampled in general accordance with the sampling protocols outlined in EPA Regulation 40 CFR 763 Subpart E763.86 (Asbestos Hazard Emergency Response Act, AHERA) and SCDHEC Regulation 61-86.1 Standards of Performance for Asbestos Projects. Interior building components were surveyed and homogeneous areas of suspect asbestos-containing materials (ACM) were visually identified and documented. Although reasonable effort was made to survey accessible suspect materials, additional suspect but un-sampled materials could be located in walls, in voids or in other concealed areas. Samples were delivered to an accredited laboratory for analysis by Polarized Light Microscopy (PLM) and Transmission Electron Microscopy (TEM), as required.

2.0 BUILDING DESCRIPTION

The building, with an estimate date of construction of early to mid-1980's, is approximately 12,000 ft^2 in size and constructed on slab on grade. The building consists of three floors with a small exterior boiler room. The building exterior is a stucco type (EFIS) wall system with a flat rolled type roofing . General interior finishes are wallboard system, lay-in ceiling tiles, carpeting, and

sheet flooring. The mechanical system was powered by a boiler feed system. The ductwork is comprised of fiberglass insulation, metal ducts, and mastic.

Suspect ACMs sampled were:

- Wallboard systems (drywall and joint compound)
- Window Caulking
- Ceiling Tiles
- Sheet Flooring
- HAVC duct mastic
- Roofing materials
- Exterior Stucco (EFIS System)
- Boiler Pipe Insulation

Non-suspect ACMs include fiberglass insulation, rubber/silicon caulking. Carpet appeared to be "tacked" down.

3.0 ASBESTOS SURVEY

The asbestos survey was conducted by SCDHEC licensed Asbestos Building Inspector Mr. Craig C. Langford (License No. ASB-22775 Exp. 07/09/20). A copy of Mr. Langford's license is included in Appendix D. The survey was conducted on January 9, 2020, in general accordance with the sampling protocols established by EPA Regulation 40 CFR 763 Subpart E 763.86, AHERA and SCDHEC R. 61-86.1. A summary of survey activities is provided below.

3.1 Regulatory Overview

An ACM is defined as any material containing asbestos of any type in an amount greater than one percent (1%). The asbestos NESHAP (40 CFR Part 61, Subpart M) regulates asbestos fiber emissions and asbestos waste disposal practices. It also requires the identification and classification of existing building materials prior to demolition or renovation activity. Under NESHAP, asbestos-containing building materials are classified as either friable, Category I non-friable or Category II non-friable ACM. Friable materials are those that, when dry, may be crumbled, pulverized or reduced to powder by hand pressure. Category I non friable ACM includes packing materials, gaskets, resilient floor coverings and asphalt roofing products containing more than 1 percent (%) asbestos. Category II non-friable ACM are non-friable materials other than Category I materials that contain more than 1% asbestos.

Friable ACM, Category I and Category II non-friable ACM which is in poor condition and has become friable or which will be subjected to drilling, sanding, grinding, cutting or abrading and which could be crushed or pulverized during anticipated renovation/demolition activities are considered regulated ACM (RACM). RACM must be removed prior to renovation or demolition activities.

In the state of South Carolina, asbestos activities are regulated by the SCDHEC under the SCDHEC Regulation 61-86.1 Standards of Performance for Asbestos Projects. The SCDHEC require that any asbestos-related activity conducted in a public building be performed by personnel licensed by

the SCDHEC. The owner or operator must provide the SCDHEC with written notification of planned abatement and removal activities prior to the commencement of those activities. The SCDHEC requires 4 day notification for non-friable projects and 10 day notification for RACM projects. Asbestos abatement must be performed by SCDHEC-licensed asbestos abatement contractors. A SCDHEC-licensed Project Designer shall prepare a written abatement design for each abatement renovation project involving the removal of greater than 3,000 square, 1,500 linear, or 656 cubic feet of RACM. Third-party air monitoring must be conducted during the abatement of friable (regulated) ACM. The SCDHEC asbestos regulations can be found at http://www.scdhec.gov.

The Occupational Safety and Health Administration (OSHA) Asbestos Standard for Construction Industry (29 CFR 1926.1101) regulates workplace exposure to asbestos. The OSHA standard requires that employee exposure to airborne asbestos fibers be maintained below 0.1 asbestos fibers per cubic centimeter of air (0.1 f/cc) for an eight-hour time weighted average. The OSHA standard classifies construction and maintenance activities, which could disturb ACM, and specifies work practices and precautions which employers must follow when engaging in each class of regulated work. A full copy of the OSHA asbestos standard for general industry may be found at OSHA's website (www.osha.gov) and should be referenced for specific information.

3.2 Visual Assessment

Our survey activities began with visual observation of the exterior and interior of the building to identify apparent homogeneous areas of suspect ACM. A homogeneous area consists of building materials, which appear similar throughout in terms of color, texture and date of application. Building materials which were not identified as concrete, glass, wood, masonry, metal or rubber were considered suspect ACM.

Terracon lifted floor coverings in several areas, where possible, and did not observe additional flooring layers unless mentioned in this report; however, as Terracon could not assess beneath all floor covering in all areas, there may be isolated areas of additional suspect material present beneath existing flooring.

3.3 Physical Assessment

A physical assessment of each homogeneous area of suspect ACM was conducted to assess the friability and condition of the materials. A friable material is defined by the EPA as a material, which can be crumbled, pulverized or reduced to powder by hand pressure when dry. Friability was assessed by physically touching suspect materials.

3.4 Sample Collection

Based on our observations, bulk samples of suspect ACMs were collected in general accordance with SCDHEC and EPA sample collection protocols. Random samples of suspect materials were collected in each homogeneous area. Bulk samples were collected using wet methods as

applicable to reduce the potential for fiber release. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker.

The selection of sample locations and frequency of sampling was based on Terracon's observations and the assumption that like materials in the same area are homogeneous in content.

A summary of the suspect ACM samples collected during the survey is presented in Table 1 in Appendix A. Sample locations are depicted on a Figure A-1 in Appendix B.

3.5 Sample Analysis

Bulk samples were submitted under chain of custody to EMSL Analytical Laboratories in Pinesville, North Carolina for analysis by Polarized Light Microscopy (PLM) with dispersion staining techniques per EPA EPA/600/R-93/116. The percentage of asbestos, where applicable, was determined by microscopical visual estimation. EMSL is accredited under the National Voluntary Laboratory Accreditation Program NVLAP.

Per the SCDHEC Regulation 61-86.1 Standards of Performance for Asbestos Projects, negative results for non-friable organically bound (NOB) materials such as flooring and roofing shall be verified with at least one TEM analysis. The additional analysis was performed by TEM in accordance with EPA/600/R-93/116 Section 2.5.5.1.

3.6 Findings and Recommendations

Forty (40) bulk samples were collected from homogeneous areas of suspect ACM. Table 1 in the Appendix A summarizes the results of the visual inspection, estimated quantities, and laboratory analyses. A site diagram with sample locations (Figure A-1) is included in Appendix B. Asbestos laboratory analytical reports, certificates of analysis with the chain of custody, are included in Appendix C. Based on the results of laboratory analysis, the following materials were identified as asbestos containing materials (ACMs) defined as containing >1% asbestos.

Laboratory analysis identified asbestos in the following materials:

- Friable joint compound (Chrysotile, 2%) associated with the wallboard system located throughout the building; approximately 15,300 ft^2 ,
- Non-friable sheet flooring backing (Chrysotile, 6%) located in all bathrooms on each floor; approximately 1,800 ft^2 ,
- Non-friable roof flashing, fibrous layer (Chrysotile, 2%-5%) located on the roof, approximately 500 ft^2.

Layered analysis identified 2% Chrysotile in 2 of the 9 samples (one sample was <1%) of joint compound. SCDHEC does not allow drywall and joint compound to be composited. Therefore, the joint compound, associated wallboard system, is considered ACM and must be removed and

disposed of as such prior to removal or demolition of walls. If warranted, additional samples of the joint compound could be collected in effort to delineate the asbestos from non-asbestos joint compound; however, due to renovation history of a building there may be a likelihood this cannot be effectively achieved.

If the ACMs listed above will be disturbed during renovation activities, they should be handled in accordance with the applicable OSHA standards and SCDHEC regulation 61-86.1 – Standards of Performance for Asbestos Projects. Demolition of the building will require removal of all identified ACM. Written notification must be submitted to SCDHEC ten (10) business days prior to the renovation or demolition activities. In accordance with SCDHEC asbestos regulations, any facility removing greater than 3,000 ft^2 of regulated ACM (i.e. joint compound/wallboard material) requires a written abatement project design. The project design shall be prepared by a SCDHEC licensed abatement designer to meet SCDHEC Asbestos Regulation 61-86.1. In addition, air monitoring is required in accordance with SCDHEC regulations

If load-bearing walls are scheduled to be removed as part of this renovation project, a SCDHEC demolition permit is required. A copy of this report must be submitted to SCDHEC (Asbestos Section) at least ten (10) working days prior to demolition of load-bearing walls along with a demolition permit application and associated fees. Once processed SCDHEC will issue a permit. Federal, state and local regulations should be referred to in order to verify compliance before any actions are initiated on an ACM.

In accordance with OSHA's Asbestos Standard, the employer shall notify affected employees and contractors of the presence and location of asbestos-containing materials and test results. A full copy of the OSHA asbestos standard for general industry may be found at OSHA's website (www.osha.gov) and should be referenced for specific information.

It should be noted that suspect materials, other than those identified during the January 9, 2020, survey may exist within the structure. Should suspect materials other than those which were identified during this survey be uncovered during or prior to the abatement and demolition process, those materials should be assumed asbestos-containing until sampling and analysis can confirm or refute their asbestos content. Should future sampling indicate that the other material is asbestos containing, Terracon recommends removal of the asbestos-containing materials by a South Carolina licensed asbestos abatement contractor prior to renovation/demolition of the building.

4.0 LEAD-BASED PAINT SURVEY

4.1 Regulatory Overview

Lead is regulated by the EPA, SCDHEC and OSHA. The EPA and SCDHEC regulate lead-based paint use, removal, and disposal, and OSHA regulates lead exposure to workers. The EPA defines LBP as paint, varnish, stain, or other applied coating that contains lead equal to or greater than 1.0 mg/cm^2, 5,000 mg/kg, or 0.5% by dry weight as determined by laboratory analysis. The SCDHEC regulations 61-107.19 require that painted demolition debris with a lead-based paint

concentration greater than 0.06% by weight be disposed in a permitted Class II landfill. For the purpose of the OSHA lead standard, lead-based paint includes metallic lead-based paint, all inorganic lead-based paint compounds, and organic lead-based paint soaps. The complete OSHA standard for compliance can be found on OSHA's website (www.osha.gov). A synopsis of the OSHA regulations (29 CFR 1926.62) and the applicability are as follows:

The OSHA *Lead Standard for Construction* (29 CFR 1926.62) applies to all construction work where an employee may be occupationally exposed to lead. All work related to construction, alteration, or repair (including painting and decorating) is included. The lead -in-construction standard applies to any detectable concentration of lead in paint, as even small concentrations of lead can result in unacceptable employee exposures depending upon on the method of removal and other workplace conditions. Under this standard, construction includes, but is not limited to, the following:

- Demolition or salvage of structures where lead-based paint or materials containing lead-based paint are present
- Removal or encapsulation of materials containing lead-based paint
- New construction, alteration, repair, or renovation of structures, substrates, or portions containing lead-based paint, or materials containing lead-based paint
- Installation of products containing lead-based paint
- Lead-based paint contamination/emergency clean-up
- Transportation, disposal, storage, or containment of lead-based paint or materials containing lead-based paint on the site or location at which construction activities are performed
- Maintenance operations associated with construction activities described above

4.2 Sampling and Analytical Protocol

Mr. Langford of Terracon conducted the lead-based paint (LBP) sampling on January 9, 2020. The LBP sampling was conducted by collecting paint chip samples. The paint chip samples were collected from painted or lacquered surfaces of building components likely to contain LBP, based on apparent date of application. The paint samples were collected down to the surface substrate so as to include any underlying paint systems in the analysis. The random paint chip samples were selected based on current paint schemes and may not be inclusive of old paint systems covered with paneling, or existing painted systems. The paint chip samples were submitted to an ELAP accredited laboratory for analysis of lead by NIOSH Method 7082M (atomic absorption).

4.3 Findings and Recommendations

Four (4) paint-chip samples were collected from the components of the structure on the site. The sample results were below the EPA definition of lead-based paint of 0.5% and below the SCDHEC 0.06% by weight threshold for disposal.

Painted demolition debris may be disposed in a C&D Landfill. SCDHEC regulations require that the lead painted demolition debris be disposed in a permitted Class II landfill. Landfills should be contacted to determine their specific disposal requirements. Metal components painted with lead -based paint may be recycled; however, the recycler should be contacted to determine their specific requirements. A summary of the lead-based paint laboratory results is presented in Table 2 in Appendix A. The analytical report is included in Appendix B.

5.0 LIMITATIONS / GENERAL COMMENTS

This survey was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions and recommendations expressed in this report are based on conditions observed during our survey of the renovation areas. The information contained in this report is relevant to the date on which this survey was performed, and should not be relied upon to represent conditions at a later date.

This report has been prepared on behalf of and exclusively for use by Palmetto Railways for specific application to their project as discussed. Terracon does not warrant the work of regulatory agencies, laboratories or other third parties supplying information, which may have been used in the preparation of this report. No warranty, express or implied is made.

This report is not a bidding document. Contractors or consultants reviewing this report must draw their own conclusions regarding further investigation or remediation deemed necessary.

APPENDIX A

TABLES

TABLE 1
ASBESTOS RESULTS SAMPLE SUMMARY
BARRACKS M766
OLD HOSPITAL DISTRICT - OLD NAVY BASE
NORTH CHARLESTON, SOUTH CAROLINA
TERRACON PROJECT NO. EN197470

Sample Number	Sample Location	Analysis Method	Analytical Results	Sample Description	HA	Classification	Friable/Non-Friable &	Estimated Quantity
WB-01	**3rd Floor**	**PLM**	**None Detected**	**Drywall**				
WB-02	**3rd Floor**	**PLM**	**None Detected**	**Drywall**				
WB-03	**3rd Floor**	**PLM**	**None Detected**	**Drywall**				
WB-04	**2nd Floor**	**PLM**	**None Detected**	**Drywall**				
WB-05	**2nd Floor**	**PLM**	**None Detected**	**Drywall**	**HA-01**	**Miscellaneous**		
WB-06	**2nd Floor**	**PLM**	**None Detected**	**Drywall**				
WB-07	**1st Floor**	**PLM**	**None Detected**	**Drywall**				
WB-08	**1st Floor**	**PLM**	**None Detected**	**Drywall**				
WB-09	**1st Floor**	**PLM**	**None Detected**	**Drywall**				
WB-01	**3rd Floor**	**PLM**	**None Detected**	**Joint Compound**			**Friable/RACM**	**15,300 ft^2**
WB-02	**3rd Floor**	**PLM**	**2% Chrysotile**	**Joint Compound**				
WB-03	**3rd Floor**	**PLM**	**None Detected**	**Joint Compound**				
WB-04	**2nd Floor**	**PLM**	**2% Chrysotile**	**Joint Compound**				
WB-05	**2nd Floor**	**PLM**	**None Detected**	**Joint Compound**	**HA-02**	**Surfacing**		
WB-06	**2nd Floor**	**PLM**	**None Detected**	**Joint Compound**				
WB-07	**1st Floor**	**PLM**	**2% Chrysotile**	**Joint Compound**				
WB-08	**1st Floor**	**PLM**	**None Detected**	**Joint Compound**				
WB-09	**1st Floor**	**PLM**	**None Detected**	**Joint Compound**				
CT-01	3rd Floor	PLM	None Detected	Ceiling Tile				
CT-02	2nd Floor	PLM	None Detected	Ceiling Tile	HA-03	Miscellaneous	Non-Friable/Good	10,200 ft^2
CT-03	1st Floor	PLM	None Detected	Ceiling Tile				
SF-01	**3rd Floor Bathroom**	**PLM**	**None Detected**	**Sheet Flooring**				
SF-02	**2nd Floor Bathroom**	**PLM**	**None Detected**	**Sheet Flooring**	**HA-04**			
SF-03	**1st Floor Bathroom**	**TEM**	**None Detected**	**Sheet Flooring**				
SF-01	**3rd Floor Bathroom**	**PLM**	**6% Chrysotile**	**Backing/Mastic**		**Miscellaneous**	**Non-Friable/Category I**	**1,800 ft^2**
SF-02	**2nd Floor Bathroom**	**PLM**	**None Dectected**	**Backing/Mastic**	**HA-05**			
SF-03	**1st Floor Bathroom**	**TEM**	**None Detected**	**Backing/Mastic**				
DM-01	3rd Floor	PLM	None Detected	Wrap/Duct Mastic				
DM-02	2nd Floor	PLM	None Detected	Wrap/Duct Mastic	HA-06	Miscellaneous	Non-Friable/Good	1,500 ft^2
DM-03	1st Floor	TEM	None Detected	Wrap/Duct Mastic				
STD-01	Exterior	PLM	None Detected	Stucco Plaster				
STD-02	Exterior	PLM	None Detected	Stucco Plaster				
STD-03	Exterior	PLM	None Detected	Stucco Plaster				
STD-04	Exterior	PLM	None Detected	Stucco Plaster	HA-07	Surfacing	Friable/Good	25,000 ft^2
STD-05	Exterior	PLM	None Detected	Stucco Plaster				
STD-06	Exterior	PLM	None Detected	Stucco Plaster				
STD-07	Exterior	PLM	None Detected	Stucco Plaster				

TABLE 1
ASBESTOS RESULTS SAMPLE SUMMARY
BARRACKS M766
OLD HOSPITAL DISTRICT - OLD NAVY BASE
NORTH CHARLESTON, SOUTH CAROLINA
TERRACON PROJECT NO. EN197470

Sample Number	Sample Location	Analysis Method	Analytical Results	Sample Description	HA	Classification	Friable/Non-Friable &	Estimated Quantity
WC-01	Windows	PLM	None Detected	Window Caulking	HA-08	Miscellaneous	Non-Friable/Good	1,200 LF
WC-02	Windows	PLM	None Detected	Window Caulking				
WC-03	Windows	TEM	None Detected	Window Caulking				
WC2-01	Window Frame	PLM	None Detected	Window Frame Caulking	HA-09	Miscellaneous	Non-Friable/Good	1,200 LF
WC2-02	Window Frame	PLM	None Detected	Window Frame Caulking				
WC2-03	Window Frame	TEM	None Detected	Window Frame Caulking				
TSI-01	Boiler Room	PLM	None Detected	Pipe Insultaion	HA-10	Miscellaneous	Friable/Good	130 LF
TSI-02	Boiler Room	PLM	None Detected	Pipe Insultaion				
TSI-03	Boiler Room	PLM	None Detected	Pipe Insultaion				
RM-01	Roof Field	PLM	None Detected	Tar/Multiple Layers	HA-11	Miscellaneous	Non-Friable/Good	4,000 ft^2
RM-02	Roof Field	PLM	None Detected	Tar/Multiple Layers				
RM-03	Roof Field	TEM	None Detected	Tar/Multiple Layers				
RF-01	**Roof Flashing**	**PLM**	**5% Chrysotile**	**Tar/Multiple Layers**	**HA-12**	**Miscellaneous**	**Non-Friable/Good**	**500 ft^2**
RF-02	**Roof Flashing**	**PLM**	**2% Chrysotile**	**Tar/Multiple Layers**				
RF-03	**Roof Flashing**	**TEM**	**0.53 % Chrysotile**	**Tar/Multiple Layers**				

1) **Bold and shaded** items are identified ACMs
2) Quantities listed above are estimates to be used for inspection purposes only and should be field-verified for all other uses.
3) Quantities listed above should not be used in construction documents or bids

RACM - Regulated Asbestos Containing Materials
HA - Homogeneous Area
PLM - Polarized Light Microscopy
TEM - Transmission Electron Microscopy

SF - Square Feet
LF - Linear Feet

TABLE 2
LEAD PAINT RESULTS SAMPLE SUMMARY
BARRACKS M766
HOSPITAL DISTRICT - OLD NAVY BASE
NORTH CHARLESTON, SOUTH CAROLINA
TERRACON PROJECT NO. EN197470

Sample Number	Description	Location	Lab Results % wt
Pb-01	Interior Wall - White Paint	Interior Wall - 3rd Floor	0.02%
Pb-02	Window Frame	Window Frame	0.02%
Pb-03	Door - Gray Paint	Door - 2nd Floor	<0.0080
Pb-04	Door Frame - Gray Paint	Door Frame - 2nd Floor	<0.0081
Notes:			
1) Results above the SCDHEC regulatory limit (0.06%) must be disposed of properly. 2) Results in BOLD face were found above action levels. 3) OSHA Lead in Construction standard must be followed.			

APPENDIX B

SITE DIAGRAM WITH SAMPLE LOCATIONS

LEGEND

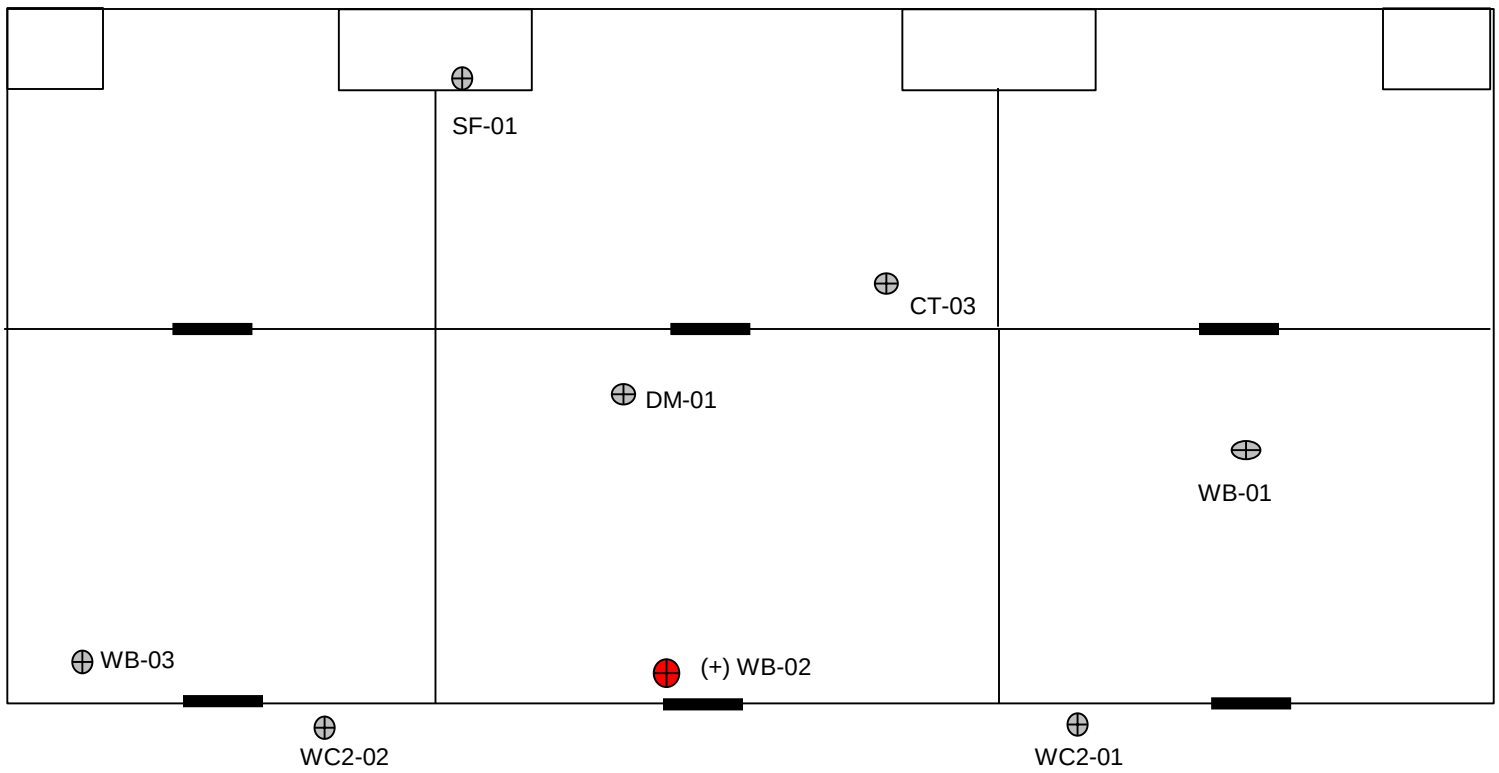
(+) ACM

NON_ACM

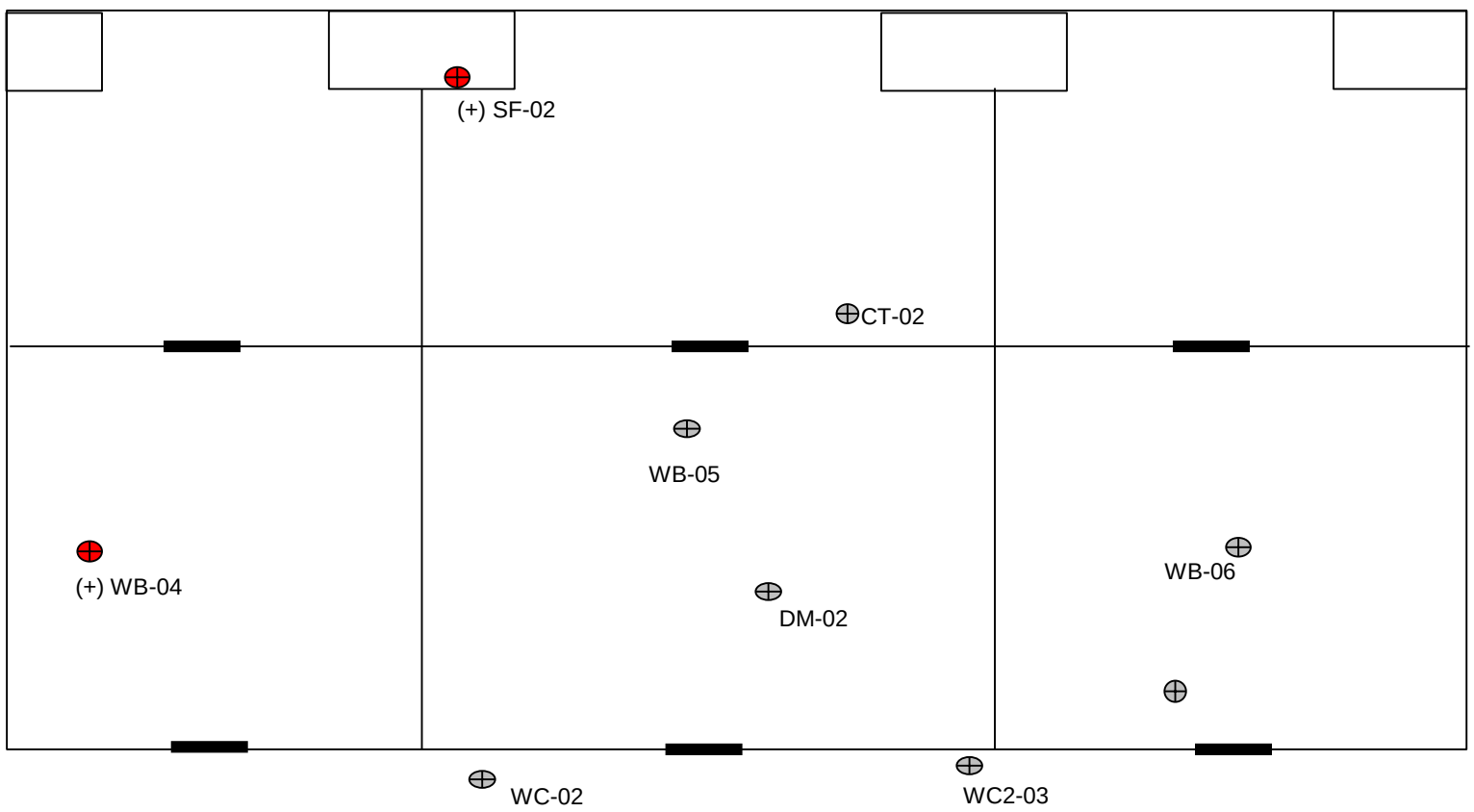
Roof Samples

Roof Field	Roof Flashing
RM-01 (-)	**RF-01 (+)**
RM-02 (-)	**RF-02 (+)**
RM-03 (-)	**RF-03 (+)**

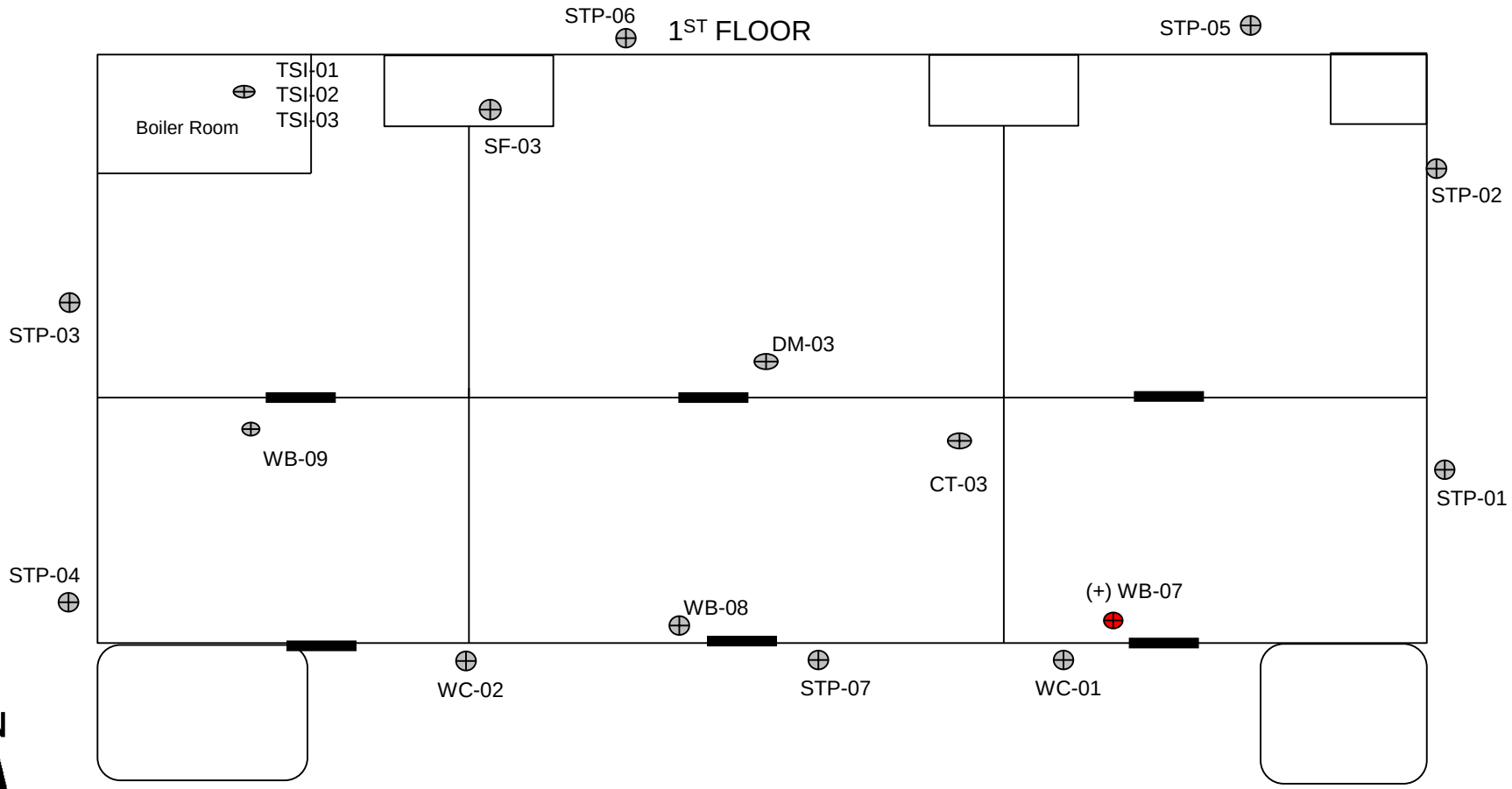
3RD FLOOR



2ND FLOOR



1ST FLOOR



N

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager: CCL	Project No. EN197470
Drawn by: CCL	Scale: N.T.S
Checked by: JAG	File Name:
Approved by: JAG	Date: 01.28.20

Terracon
Consulting Engineers & Scientists
1450 Fifth Street West North Charleston, South Carolina
PH. 843.884.1234 Terracon.com

GENERAL BUILDING LAYOUT / SAMPLE LOCATIONS

BUILDING M766 – NEW BARRACKS
HOSPITAL DISTRICT OLD NAVY BASE
NORTH CHRLESTON, SOUTH CAROLINA

Figure
A-1

APPENDIX D

LABORATORY REPORTS

EMSL Analytical, Inc.

10801 Southern Loop Blvd Pineville, NC 28134

Tel/Fax: (704) 525-2205 / (704) 525-2382

http://www.EMSL.com / charlottelab@emsl.com

EMSL Order:	412000255
Customer ID:	WPCE62
Customer PO:	EN197470
Project ID:	

Attention:	Craig Langford	**Phone:**	(843) 442-6658
	Terracon, Inc.	**Fax:**	(843) 884-9234
	1450 Fifth Street West	**Received Date:**	01/10/2020 9:00 AM
	North Charleston, SC 29405	**Analysis Date:**	01/13/2020 - 01/14/2020
		Collected Date:	
Project:	EN197470 / Bldg M766		

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
WB-01-Drywall *412000255-0001*	Drywall / Joint Compound	Gray Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
WB-01-Joint Compound *412000255-0001A*	Drywall / Joint Compound	White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected
WB-02-Drywall *412000255-0002*	Drywall / Joint Compound	Gray/White Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
WB-02-Joint Compound *412000255-0002A*	Drywall / Joint Compound	White Non-Fibrous Homogeneous		40% Ca Carbonate 58% Non-fibrous (Other)	2% Chrysotile
WB-03-Drywall *412000255-0003*	Drywall / Joint Compound	Gray Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
WB-03-Joint Compound *412000255-0003A*	Drywall / Joint Compound	White Non-Fibrous Homogeneous		35% Ca Carbonate 65% Non-fibrous (Other)	None Detected
WB-04-Drywall *412000255-0004*	Drywall / Joint Compound	Gray Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
WB-04-Joint Compound *412000255-0004A*	Drywall / Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	<1% Chrysotile
WB-05-Drywall *412000255-0005*	Drywall / Joint Compound	Gray Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
WB-05-Joint Compound *412000255-0005A*	Drywall / Joint Compound	White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected
WB-06-Drywall *412000255-0006*	Drywall / Joint Compound	Gray Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
WB-06-Joint Compound *412000255-0006A*	Drywall / Joint Compound	White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected
WB-07-Drywall *412000255-0007*	Drywall / Joint Compound	Gray Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
WB-07-Joint Compound *412000255-0007A*	Drywall / Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 68% Non-fibrous (Other)	2% Chrysotile
WB-08-Joint Compound *412000255-0008* *No drywall present*	Drywall / Joint Compound	White Non-Fibrous Homogeneous		30% Ca Carbonate 70% Non-fibrous (Other)	None Detected
WB-08-Tape *412000255-0008A*	Drywall / Joint Compound	Tan Fibrous Homogeneous	95% Cellulose	5% Non-fibrous (Other)	None Detected

Initial report from: 01/15/2020 09:09:19

EMSL Analytical, Inc.
10801 Southern Loop Blvd Pineville, NC 28134
Tel/Fax: (704) 525-2205 / (704) 525-2382
http://www.EMSL.com / charlottelab@emsl.com

EMSL Order: 412000255
Customer ID: WPCE62
Customer PO: EN197470
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
WB-09-Joint Compound *412000255-0009* *No drywall present*	Drywall / Joint Compound	White Non-Fibrous Homogeneous		40% Ca Carbonate 60% Non-fibrous (Other)	None Detected
CT-01 *412000255-0010*	Ceiling Tile	Gray/White Fibrous Homogeneous	55% Cellulose 15% Min. Wool	10% Perlite 20% Non-fibrous (Other)	None Detected
CT-02 *412000255-0011*	Ceiling Tile	Gray/White Fibrous Homogeneous	55% Cellulose 15% Min. Wool	10% Perlite 20% Non-fibrous (Other)	None Detected
CT-03 *412000255-0012*	Ceiling Tile	Tan Fibrous Homogeneous	20% Min. Wool	55% Ca Carbonate 5% Perlite 20% Non-fibrous (Other)	None Detected
SF-01-Flooring *412000255-0013*	Speckled Sheet Flooring / Mastic	Gray Fibrous Homogeneous	15% Cellulose 3% Glass	82% Non-fibrous (Other)	None Detected
SF-01-Mastic *412000255-0013A*	Speckled Sheet Flooring / Mastic	Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
SF-01-Backing *412000255-0013B*	Speckled Sheet Flooring / Mastic	Gray Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
SF-02-Flooring *412000255-0014*	Speckled Sheet Flooring / Mastic	Gray Non-Fibrous Homogeneous	15% Cellulose 3% Glass	82% Non-fibrous (Other)	None Detected
SF-02-Mastic *412000255-0014A*	Speckled Sheet Flooring / Mastic	Tan Non-Fibrous Homogeneous		5% Ca Carbonate 95% Non-fibrous (Other)	None Detected
DM-01-Wrap *412000255-0016*	Duct Mastic	Tan/Silver Fibrous Homogeneous	85% Cellulose	15% Non-fibrous (Other)	None Detected
DM-01-Mastic *412000255-0016A*	Duct Mastic	White Non-Fibrous Homogeneous	2% Wollastonite	10% Ca Carbonate 88% Non-fibrous (Other)	None Detected
DM-02-Wrap *412000255-0017*	Duct Mastic	Tan Fibrous Homogeneous	85% Cellulose	15% Non-fibrous (Other)	None Detected
DM-02-Mastic *412000255-0017A*	Duct Mastic	Tan Non-Fibrous Homogeneous	2% Wollastonite	10% Ca Carbonate 88% Non-fibrous (Other)	None Detected
STP-01 *412000255-0019*	Stucco Plaster	Gray Non-Fibrous Homogeneous		30% Quartz 8% Ca Carbonate 62% Non-fibrous (Other)	None Detected
STP-02 *412000255-0020*	Stucco Plaster	Gray Non-Fibrous Homogeneous		30% Quartz 8% Ca Carbonate 62% Non-fibrous (Other)	None Detected
STP-03 *412000255-0021*	Stucco Plaster	Gray Non-Fibrous Homogeneous		30% Quartz 8% Ca Carbonate 62% Non-fibrous (Other)	None Detected
STP-04 *412000255-0022*	Stucco Plaster	Gray Non-Fibrous Homogeneous		30% Quartz 8% Ca Carbonate 62% Non-fibrous (Other)	None Detected
STP-05 *412000255-0023*	Stucco Plaster	Gray Non-Fibrous Homogeneous		30% Quartz 10% Ca Carbonate 60% Non-fibrous (Other)	None Detected

Initial report from: 01/15/2020 09:09:19

EMSL Analytical, Inc.
10801 Southern Loop Blvd Pineville, NC 28134
Tel/Fax: (704) 525-2205 / (704) 525-2382
http://www.EMSL.com / charlottelab@emsl.com

EMSL Order: 412000255
Customer ID: WPCE62
Customer PO: EN197470
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
STP-06 *412000255-0024*	Stucco Plaster	Gray Non-Fibrous Homogeneous		30% Quartz 8% Ca Carbonate 62% Non-fibrous (Other)	None Detected
STP-07 *412000255-0025*	Stucco Plaster	Gray Non-Fibrous Homogeneous		30% Quartz 10% Ca Carbonate 60% Non-fibrous (Other)	None Detected
WC-01 *412000255-0026*	Window Caulk	White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
WC-02 *412000255-0027*	Window Caulk	Gray/White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
WC2-01 *412000255-0029*	Window Caulk (Frame)	Gray/White Non-Fibrous Homogeneous		20% Ca Carbonate 80% Non-fibrous (Other)	None Detected
WC2-02 *412000255-0030*	Window Caulk (Frame)	Gray Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
TSI-01 *412000255-0032*	Pipe Insulation - Boiler	White Fibrous Homogeneous	8% Synthetic	60% Ca Carbonate 32% Non-fibrous (Other)	None Detected
TSI-02 *412000255-0033*	Pipe Insulation - Boiler	White Fibrous Homogeneous	8% Synthetic	60% Ca Carbonate 32% Non-fibrous (Other)	None Detected
TSI-03 *412000255-0034*	Pipe Insulation - Boiler	Gray Fibrous Homogeneous	10% Min. Wool	60% Ca Carbonate 30% Non-fibrous (Other)	None Detected

Analyst(s)
Anupriya Tyagi (25)
James Kincheloe (18)

Lee Plumley, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method"), but augmented with procedures outlined in the 1993 ("final") version of the method. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. All samples received in acceptable condition unless otherwise noted. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. EMSL recommends gravimetric reduction for all non-friable organically bound materials prior to analysis. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Pineville, NC NVLAP Lab Code 200841-0, VA 3333 00312

Initial report from: 01/15/2020 09:09:19

EMSL Analytical, Inc.
10801 Southern Loop Blvd Pineville, NC 28134
Tel/Fax: (704) 525-2205 / (704) 525-2382
http://www.EMSL.com / charlottelab@emsl.com

EMSL Order: 412000255
Customer ID: WPCE62
Customer PO: EN197470
Project ID:

Attention: Craig Langford
Terracon, Inc.
1450 Fifth Street West
North Charleston, SC 29405

Project: EN197470 / Bldg M766

Phone: (843) 442-6658
Fax: (843) 884-9234
Received Date: 01/10/2020 9:00 AM
Analysis Date: 01/11/2020
Collected Date:

Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM via EPA/600/R-93/116 Section 2.5.5.1

Sample ID	Description	Appearance	% Matrix Material	% Non-Asbestos Fibers	Asbestos Types
SF-03-Flooring *412000255-0015*	Speckled Sheet Flooring / Mastic	Gray Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
SF-03-Mastic *412000255-0015A*	Speckled Sheet Flooring / Mastic	Tan Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
DM-03-Mastic *412000255-0018*	Duct Mastic	Tan Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
WC-03 *412000255-0028*	Window Caulk	White Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
WC2-03 *412000255-0031*	Window Caulk (Frame)	Gray Non-Fibrous Homogeneous	99.88 Other	0.12 Fibrous_Other	No Asbestos Detected

Analyst(s)

Aaron Hartley (5)

Lee Plumley, Laboratory Manager
or other approved signatory

This laboratory is not responsible for % asbestos in total sample when the residue only is submitted for analysis. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Pineville, NC

Initial report from: 01/15/2020 09:09:15

OrderID: 412000255

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (*Lab Use Only*): 412000255

EMSL ANALYTICAL, INC.
706 GRALIN STREET
KERNERSVILLE, NC 27284
PHONE: 336-992-1025
FAX: 336-992-4175

Company : Terracon	**EMSL-Bill to:** ☐ Same ☐ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*
Street: 1450 Fifth Street W	
City: North Charleston / **State/Province: SC**	**Zip/Postal Code: 29405** / **Country: US**
Report To (Name): Craig Langford	**Fax #:**
Telephone #: 843-442-6658	**Email Address: craig.langford@terracon.com**
Project Name/Number: EN197470 Bldg M766	
Please Provide Results: ☐ Fax ☒ Email	**Purchase Order:** / **U.S. State Samples Taken: SC**

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hours ☐ 6 Hours ☐ 24 Hrs ☐ 48 Hrs ☒ 3 Days ☐ 4 Days ☐ 5 Days ☐ 10 Days

**For TEM Air 3 hours/6 hours, please call ahead to schedule.*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.*

PCM - Air
- ☐ NIOSH 7400
- ☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
- ☒ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)

Point Count
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)

Point Count w/Gravimetric
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- ☐ NYS 198.1 (friable in NY)
- ☐ NYS 198.6 NOB (non-friable-NY)
- ☐ NIOSH 9002 (<1%)

TEM - Air
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312

TEM - Bulk
- ☒ TEM EPA NOB
- ☐ NYS NOB 198.4 (non-friable-NY)
- ☐ Chatfield SOP
- ☐ TEM Mass Analysis-EPA 600 sec. 2.5

TEM – Water: EPA 100.2
- Fibers >10µm ☐ Waste ☐ Drinking
- All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
- ☐ Microvac - ASTM D 5755
- ☐ Wipe - ASTM D6480
- ☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite
- ☐ PLM CARB 435 - A (0.25% sensitivity)
- ☐ PLM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - C (0.01% sensitivity)
- ☐ EPA Protocol (Semi-Quantitative)
- ☐ EPA Protocol (Quantitative)

Other:
- ☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group**

Samplers Name: / **Samplers Signature:**

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
WB-01/03	Drywall / Joint Compound	HA 1	
CT-01/03	Ceiling tile	HA-2	
SF 01/03	Speckled Sheet Flooring / mastic	HA 3	TEM NOB
DM-01/03	Duct mastic	HA 4	TEM NOB
STP-01/07	Stucco Plaster	HA-5	
WC-01/03	Window Caulk	HA 6	TEM NOB
WC2-01/03	Window Caulk (Frame)	HA 7	TEM NOB
TSI-01/03	Pipe Insulation - Boiler	HA 8	

Client Sample # (s): - **Total # of Samples:** 34

Relinquished (Client): [signature] **Date:** 2/9/20 **Time:** 1605

Received (Lab): [signature] **Date:** 1/10/20 **Time:** 9am F/X 7909 9346 8463

Comments/Special Instructions:

TEM NOB Run Concurrently on Sample #03 of HA

EMSL Analytical, Inc.

10801 Southern Loop Blvd Pineville, NC 28134

Tel/Fax: (704) 525-2205 / (704) 525-2382

http://www.EMSL.com / charlottelab@emsl.com

EMSL Order:	412000720
Customer ID:	WPCE62
Customer PO:	EN197470
Project ID:	

Attention:	Craig Langford	**Phone:**	(843) 442-6658
	Terracon, Inc.	**Fax:**	(843) 884-9234
	1450 Fifth Street West	**Received Date:**	01/23/2020 11:40 AM
	North Charleston, SC 29405	**Analysis Date:**	01/24/2020
		Collected Date:	
Project:	EN197470 M766		

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
RM-01-Tar *412000720-0001*	Roof Field Material	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
RM-01-Synthetic Layer *412000720-0001A*	Roof Field Material	Black Fibrous Homogeneous	15% Synthetic	5% Quartz 80% Non-fibrous (Other)	None Detected
RM-01-Glass Layer *412000720-0001B*	Roof Field Material	Black Fibrous Homogeneous	35% Glass	65% Non-fibrous (Other)	None Detected
RM-02-Tar *412000720-0002*	Roof Field Material	Black Fibrous Homogeneous	1% Cellulose	99% Non-fibrous (Other)	None Detected
RM-02-Synthetic Layer *412000720-0002A*	Roof Field Material	Black Fibrous Homogeneous	15% Synthetic	2% Ca Carbonate 83% Non-fibrous (Other)	None Detected
RM-02-Glass Layer *412000720-0002B*	Roof Field Material	Black Fibrous Homogeneous	10% Glass	90% Non-fibrous (Other)	None Detected
RF-01-Tar *412000720-0004*	Roof Flashing	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
RF-01-Fibrous Layer *412000720-0004A*	Roof Flashing	Black Fibrous Homogeneous	25% Cellulose	70% Non-fibrous (Other)	5% Chrysotile
RF-01-Synthetic Layer *412000720-0004B*	Roof Flashing	Black Fibrous Homogeneous	25% Synthetic	75% Non-fibrous (Other)	None Detected
RF-02-Tar *412000720-0005*	Roof Flashing	Black Fibrous Homogeneous	<1% Cellulose	100% Non-fibrous (Other)	None Detected
RF-02-Fibrous Layer *412000720-0005A*	Roof Flashing	Black Fibrous Homogeneous	25% Cellulose	73% Non-fibrous (Other)	2% Chrysotile
RF-02-Synthetic Layer *412000720-0005B*	Roof Flashing	Black Non-Fibrous Homogeneous	10% Synthetic	90% Non-fibrous (Other)	None Detected

Initial report from: 01/24/2020 14:53:39

EMSL Analytical, Inc.
10801 Southern Loop Blvd Pineville, NC 28134
Tel/Fax: (704) 525-2205 / (704) 525-2382
http://www.EMSL.com / charlottelab@emsl.com

EMSL Order:	412000720
Customer ID:	WPCE62
Customer PO:	EN197470
Project ID:	

Analyst(s)

Anupriya Tyagi (6)
Sarah Breneman (6)

Lee Plumley, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method"), but augmented with procedures outlined in the 1993 ("final") version of the method. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. All samples received in acceptable condition unless otherwise noted. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. EMSL recommends gravimetric reduction for all non-friable organically bound materials prior to analysis. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Pineville, NC NVLAP Lab Code 200841-0, VA 3333 00312

Initial report from: 01/24/2020 14:53:39

EMSL Analytical, Inc.
10801 Southern Loop Blvd Pineville, NC 28134
Tel/Fax: (704) 525-2205 / (704) 525-2382
http://www.EMSL.com / charlottelab@emsl.com

EMSL Order: 412000720
Customer ID: WPCE62
Customer PO: EN197470
Project ID:

Attention: Craig Langford
Terracon, Inc.
1450 Fifth Street West
North Charleston, SC 29405

Project: EN197470 M766

Phone: (843) 442-6658
Fax: (843) 884-9234
Received Date: 01/23/2020 11:40 AM
Analysis Date: 01/25/2020
Collected Date:

Test Report: Asbestos Analysis of Non-Friable Organically Bound Materials by TEM via EPA/600/R-93/116 Section 2.5.5.1

Sample ID	Description	Appearance	% Matrix Material	% Non-Asbestos Fibers	Asbestos Types
RM-03-Tar *412000720-0003*	Roof Field Material	Black Non-Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
RM-03-Synthetic Layer *412000720-0003A*	Roof Field Material	Black Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
RM-03-Glass Layer *412000720-0003B*	Roof Field Material	Black Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected
RF-03-Tar *412000720-0006*	Roof Flashing	Black Non-Fibrous Homogeneous	99.47 Other	None	0.53% Chrysotile
RF-03-Fibrous Layer *412000720-0006A*	Roof Flashing				
Positive Stop (Not Analyzed)					
RF-03-Synthetic Layer *412000720-0006B*	Roof Flashing	Black Fibrous Homogeneous	100.0 Other	None	No Asbestos Detected

Analyst(s)

Aaron Hartley (5)

Lee Plumley, Laboratory Manager
or other approved signatory

This laboratory is not responsible for % asbestos in total sample when the residue only is submitted for analysis. The above report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL Analytical, Inc. Samples received in good condition unless otherwise noted. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample.

Samples analyzed by EMSL Analytical, Inc. Pineville, NC

Initial report from: 01/27/2020 08:08:46

OrderID: 412000720

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number *(Lab Use Only)*: 412000720

EMSL ANALYTICAL, INC.
706 GRALIN STREET
KERNERSVILLE, NC 27284
PHONE: 336-992-1025
FAX: 336-992-4175

Company : Terracon		**EMSL-Bill to:** ☐ Same ☐ Different If Bill to is Different note instructions in Comments**	
Street: 1450 Fifth Street W		*Third Party Billing requires written authorization from third party*	
City: North Charleston	**State/Province: SC**	**Zip/Postal Code: 29405**	**Country: US**
Report To (Name): Craig Langford		**Fax #:**	
Telephone #: 843-442-6658		**Email Address: craig.langford@terracon.com**	
Project Name/Number: EN197470 M766			
Please Provide Results: ☐ Fax ☒ Email	**Purchase Order:**	**U.S. State Samples Taken: SC**	

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hours ☐ 6 Hours ☐ 24 Hrs ☒ 48 Hrs ☐ 3 Days ☐ 4 Days ☐ 5 Days ☐ 10 Days

**For TEM Air 3 hours/6 hours, please call ahead to schedule. There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.*

PCM - Air
- ☐ NIOSH 7400
- ☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
- ☒ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)

Point Count
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)

Point Count w/Gravimetric
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- ☐ NYS 198.1 (friable in NY)
- ☐ NYS 198.6 NOB (non-friable-NY)
- ☐ NIOSH 9002 (<1%)

TEM - Air
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312

TEM - Bulk
- ☒ TEM EPA NOB
- ☐ NYS NOB 198.4 (non-friable-NY)
- ☐ Chatfield SOP
- ☐ TEM Mass Analysis-EPA 600 sec. 2.5

TEM – Water: EPA 100.2
- Fibers >10µm ☐ Waste ☐ Drinking
- All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
- ☐ Microvac - ASTM D 5755
- ☐ Wipe - ASTM D6480
- ☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite
- ☐ PLM CARB 435 - A (0.25% sensitivity)
- ☐ PLM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - C (0.01% sensitivity)
- ☐ EPA Protocol (Semi-Quantitative)
- ☐ EPA Protocol (Quantitative)

Other:
- ☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group**

Samplers Name: **Samplers Signature:**

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
RM 01/03	Roof Field Material	TEM NOB	1
RF 01/03	Roof Flashing	↓	2

Client Sample # (s): - **Total # of Samples:** 6

Relinquished (Client): [signature] **Date:** 1/22/20 **Time:** 1685

Received (Lab): [signature] **Date:** 1/23/20 **Time:** 11:40 AM F/x

Comments/Special Instructions:
TEM NOB Run Currently For Sample # 03 w EA HA

7958 1748 3806

EMSL Analytical, Inc.
10801 Southern Loop Blvd, Pineville, NC 28134
Phone/Fax: (704) 525-2205 / (704) 525-2382
http://www.EMSL.com charlottelab@emsl.com

EMSL Order:	412000256
CustomerID:	WPCE62
CustomerPO:	EN197470
ProjectID:	

Attn: **Craig Langford**
Terracon, Inc.
1450 Fifth Street West
North Charleston, SC 29405

Phone:	(843) 884-1234
Fax:	(843) 884-9234
Received:	01/10/20 9:00 AM
Collected:	

Project: **EN197470 Bldg M766**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Weight*	*Lead Concentration*
Pb-01	*412000256-0001*		1/10/2020	0.2811 g	0.022 % wt
	Site: Interior Wall				
Pb-02	*412000256-0002*		1/10/2020	0.2624 g	0.020 % wt
	Site: Window Frame				
Pb-03	*412000256-0003*		1/10/2020	0.2964 g	<0.0080 % wt
	Site: Door				
Pb-04	*412000256-0004*		1/10/2020	0.2771 g	<0.0080 % wt
	Site: Door Frame				

Kyle Collins, Technical Manager
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Analytical, Inc. Pineville, NC AIHA-LAP, LLC - ELLAP 192283

Initial report from 01/14/2020 07:46:32

OrderID: 412000256

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Lead (Pb) Chain of Custody

EMSL Order ID *(Lab Use Only):*

412000256

EMSL ANALYTICAL, INC.
706 GRALIN STREET
KERNERSVILLE, NC 27284
336-992-1025

Company : Terracon		**EMSL-Bill to:** ☐ Same ☐ Different If Bill to is Different note instructions in Comments**	
Street: 1450 Fifth Street West		*Third Party Billing requires written authorization from third party*	
City: North Charleston	**State/Province: sc**	**Zip/Postal Code: 29405**	**Country:**
Report To (Name): Craig Langford		**Fax #:**	
Telephone #: 843-442-6658		**Email Address: craig.langford@terracon.com**	
Project Name/Number: EN197470		Bldg M766	
Please Provide Results: ☐ Fax ☐ Email	**Purchase Order:**	**U.S. State Samples Taken:**	

Turnaround Time (TAT) Options* - Please Check

☐ 3 Hours	☐ 6 Hours	☐ 24 Hours	☒ 48 Hours	☐ 3 Days	☐ 4 Days	☐ 5 Days	☐ 10 Days

**Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide*

Matrix	Method	Instrument	Reporting Limit	Check
Chips ☐ mg/cm² ☒ % by wt.	SW846-7000B/7420 or AOAC 974.02	Flame Atomic Absorption	0.01%	☒
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter	☐
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter	☐
	NIOSH 7300 modified	ICP-AES	0.5 µg/filter	☐
Wipe* ☐ ASTM ☐ non ASTM *If no box is checked, non-ASTM Wipe is assumed	SW846-7000B/7420	Flame Atomic Absorption	10 µg/wipe	☐
	SW846-6010B or C	ICP-AES	0.5 µg/wipe	☐
TCLP	SW846-1311/7420/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	SW846-6010B or C	ICP-AES	0.1 mg/L (ppm)	☐
Soil	SW846-7420	Flame Atomic Absorption	40 mg/kg (ppm)	☐
	SW846-7421	Graphite Furnace AA	0.3 mg/kg (ppm)	☐
	SW86-6010B or C	ICP-AES	1 mg/kg (ppm)	☐
Wastewater	SM3111B or SW846-7000B/7420	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	SW846-6010B or C	ICP-AES	1 mg/kg (ppm)	☐
Drinking Water	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐

Other:	**Preservation Method (Water):**
Name of Sampler:	**Signature of Sampler:**

Sample #	Location	Volume/Area	Date/Time Sampled
Pb-01	Interior wall		
Pb-02	Window frame		
Pb-03	Door		
Pb-04	Door frame		

Client Sample #'s				**Total # of Samples:**	4
Relinquished (Client):		**Date:**	2/9/20	**Time:**	1600
Received (Lab):		**Date:**	1/10/20	**Time:**	9am F/X
Comments:					7909 9346 8463

APPENDIX E

INSPECTOR CREDENTIALS

CRAIG C. LANGFORD

SOUTH CAROLINA DEPARTMENT OF HEALTH AND
ENVIRONMENTAL CONTROL – ASBESTO SECTION

CONSULTANT/PROJECT DESIGN – PD-00032_EXP 07/10/20
CONSULTANT/BUILDING INSPECTOR ASB-22775_EXP 07/09/20
AIR SAMPLER/MONITOR ASB-22599_EXP 07/08/20
SUPERVISOR SA-03094_EXP 07/08/20